BIO 26 PAL Worksheet
Week 3 (#2): Cardiac Cycle and Wiggers Diagram

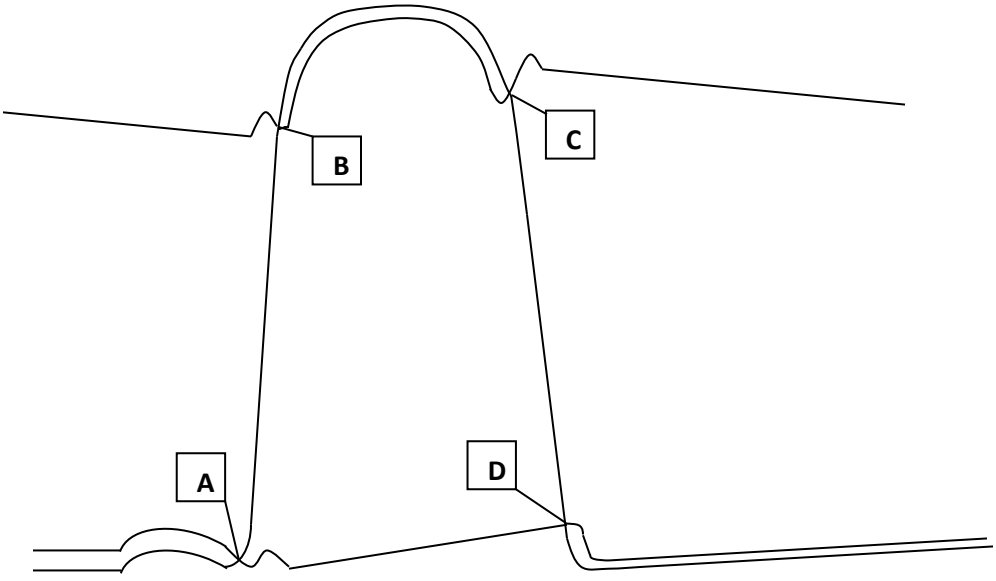
The Wiggers Diagram summarizes what is going in the heart during one cardiac cycle. It provides information about what is happening electrically, in terms of pressure changes associated with contraction and relaxation of the heart, and the changes in blood volume. It's the best!

1. The following represents just the pressure panel for the left side of the heart.
   A. Recreate this drawing on your white board, using different colors for the different lines. Add labels: L atrial pressure, L ventricular pressure, and pressure in the aorta.

   B. Match the following events to the letter boxes – try without peaking at your notes:
      - End-diastolic volume
      - End-systolic volume
      - Even right after the QRS complex
      - Event right after the T wave
      - Aortic semilunar valve opens
      - Aortic semilunar valve closes
      - L AV valve opens
      - L AV valve closes

   C. What is occurring in the heart between A-B, B-C, C-D, D-A?

   D. Why does atrial pressure increase just left of A?
      Why does atrial pressure increase between A and D?
      Why does atrial pressure decrease just right of D?
      Why do you think there is a "hump" in aortic pressure just right of C?
      Why does ventricular pressure shoot up right after A?



2. Add actual pressures to your diagram (in mmHg). What is the pressure in the aorta during ventricular contraction and blood ejection (systole)? What is the pressure in the aorta during ventricular relaxation (diastole)? How is this related to blood pressure?

   How would these pressures change if the Wiggers Diagram was drawn for the right side of the heart? Would the ECG tracing or volume tracing of the Wiggers Diagram look different for the right side?

   BONUS: Assume the aortic semilunar valve was stenotic and hard to open. How would this change the Wiggers Diagram?